

CLAIMS

1. The use of an agent which promotes tyrosine protein dephosphorylation in the preparation of a medicament for reducing permeability of a physiological barrier such as the blood-brain barrier.
2. The use as claimed in claim 1, wherein the agent directly or indirectly activates tyrosine protein phosphatase and/or directly or indirectly inhibits tyrosine kinase.
3. The use of an agent which promotes tyrosine protein phosphorylation in the preparation of a medicament for increasing permeability of a physiological barrier such as the blood-brain barrier.
4. The use as claimed in claim 3, wherein the agent directly or indirectly inhibits tyrosine protein phosphatase and/or directly or indirectly activates tyrosine kinase.
5. The use as claimed in any one of claims 1 to 4, wherein the phosphorylation or dephosphorylation promotion effect of the agent is reversible or sufficiently reversible to avoid untoward toxicity problems.
6. The use as claimed in claim 4 or 5, wherein the agent is a vanadium-containing salt.
7. The use as claimed in claim 6, wherein the agent is a pervanadate.
8. The use as claimed in claim 4, wherein the agent is phenylarsine oxide.

9. The use as claimed in any one of claims 1 to 8, wherein the tyrosine phosphorylation or dephosphorylation involves one or more components of the cadherin/catenin complex.

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10. The use as claimed in any one of claims 1 to 8, wherein the tyrosine phosphorylation or dephosphorylation involves E-cadherin, N-cadherin, P-cadherin,  $\beta$ -catenin, ZO-1, ZO-2, p100 or p120.

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11. The use as claimed in claim 9, wherein the tyrosine phosphorylation or dephosphorylation involves  $\beta$ -catenin, ZO-1, ZO-2, p100 or p120.

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12. The use of an agent which promotes tyrosine protein dephosphorylation in the preparation of a medicament for decreasing brain oedema, such as following stroke or associated with brain tumours.

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13. The use of an agent which promotes tyrosine protein dephosphorylation in the preparation of a medicament for treating or preventing peripheral oedema, such as high altitude pulmonary oedema.

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14. The use of an agent which promotes tyrosine protein dephosphorylation in the preparation of a medicament for blocking the entry into the brain of leukocytes that mediate an immune response.

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15. The use of an agent which promotes tyrosine protein dephosphorylation in the preparation of a medicament for treating multiple sclerosis.

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16. The use of an agent which promotes tyrosine protein dephosphorylation in the preparation of a medicament for preventing cancer metastasis.

5 17. The use of an agent which promotes tyrosine protein phosphorylation and the use of a blood-brain barrier- or other physiological barrier-impermeant drug in the preparation of a medicament for delivering the drug to the brain or other part of the body (such as a tumour) the other side of the barrier.

10 18. The use of an agent which promotes pulmonary epithelial cell tyrosine protein phosphorylation in the preparation of a medicament for treating or preventing accumulation of mucous in the airways.

15 19. The use of an agent which promotes tyrosine protein dephosphorylation in the preparation of a medicament for treating gastric ulcers.

20 20. A composition comprising an agent which promotes tyrosine protein phosphorylation and a drug to be delivered across a physiological barrier such as the blood-brain barrier.